

IN THE CLAIMS:

Please replace the present claims with the following amended set of claims.

Listing of Claims:

1. (Currently Amended) A microfluidic device for assaying a liquid biological sample of 10 μ L or less, said device including at least one well in which a reagent or conditioning agent is immobilized on a substrate placed in said well, said well having an entry for said sample at a side thereof from a capillary passageway and an air vent positioned opposite said sample entry, the improvement comprising a uniform array of posts positioned adjacent said substrate and having more than one column of posts disposed in said well, said posts being arrayed in columns at a right angle to the flow of said sample from said sample entry to said vent for directing said sample from the entry of said well uniformly over said substrate containing said reagent or conditioning agent in a predetermined uniform manner and purging air from said well through said vent, said array of posts disposed to provide lower capillary force in said well relative to capillary force in said capillary passageway.

Claim 2 (Canceled)

3. (Previously Presented) A microfluidic device of Claim 1 wherein said uniform array of posts has a second column of posts adjacent to a first column of posts, said posts of said second column positioned between the posts of said first column, thereby preventing said sample liquid from flowing in a straight line through said space.

4. (Previously Presented) A microfluidic device of Claim 1 wherein said posts have at least one wedge-shaped cutout aligned vertically to said substrate for facilitating movement of the sample liquid across said well from said sample entry uniformly over said substrate.

5. (Previously Presented) A microfluidic device of Claim 1 wherein said uniform array of posts is positioned above said substrate.

6. (Previously Presented) A microfluidic device of Claim 1 wherein said uniform array of posts contacts said substrate.

7. (Previously Presented) A microfluidic device of Claim 1 further comprising a ramp for directing flow upward or downward to a substrate disposed on a plateau.

8. (Previously Presented) A microfluidic device of Claim 1 further comprising a groove or weir disposed perpendicularly to the direction of sample flow.

9. (Currently Amended) A method of distributing a liquid sample of 10 μ L or less uniformly over a reagent or conditioning agent immobilized on a substrate placed in a well of a microfluidic device, said well having an entry for said sample of a side thereof from a capillary passageway and an air vent positioned opposite said sample entry, comprising passing said sample through a uniform array of posts positioned adjacent said substrate and having more than one column of posts in said well, said uniform array of posts arrayed in columns at a right angle to the flow of said sample for directing movement of said sample in a predetermined uniform manner from said entry uniformly over said substrate and purging air from said well through a vent positioned opposite said sample entry, said array of posts disposed to provide lower capillary force in said well relative to capillary force in said capillary passageway.

Claim 10 (Canceled)

11. (Previously Presented) A method of Claim 9 wherein said uniform array of posts has a second column of posts adjacent to a first column of posts, said posts of said second column positioned between the posts of said first column, thereby preventing said liquid sample from flowing in a straight line over said substrate.

12. (Previously Presented) A method of Claim 9 wherein said posts have at least one wedge-shaped cutout aligned vertically to said substrate for facilitating movement of said liquid onto

said substrate.

13. (Previously Presented) A method of Claim 9 wherein said posts are positioned above said substrate.

14. (Previously Presented) A method of Claim 9 wherein said posts contact said substrate.

15. (Previously Presented) A method of Claim 9 wherein said well further comprises a ramp for directing flow upward to a substrate disposed on a plateau.

16. (Previously Presented) A method of Claim 9 wherein said well further comprises a groove or weir disposed perpendicularly to the direction of sample flow.

Claims 17-26 (Canceled)

27. (Currently Amended) A method of distributing a liquid sample of 10 μ L or less uniformly over a reagent or conditioning agent immobilized on a substrate placed in the well of a microfluidic device, said well having an entry for said sample at a side thereof from a capillary passageway and an air vent positioned opposite said sample entry comprising:

(a) passing said liquid over an inlet passageway containing grooves or weirs disposed perpendicularly to the flow of the sample liquid, and thereafter;

(b) passing said sample liquid through a uniform array of microposts disposed at right angle to the flow of said liquid in said well to distribute said liquid sample uniformly over said ~~substrate reagent or conditioning agent~~ and purging air from said well from a vent positioned opposite said entry for said sample, said array of microposts disposed to provide lower capillary force in said well relative to capillary force in said capillary passageway.

28. (Previously Presented) A method of Claim 27, wherein said uniform array of microposts has at least two columns of said microposts disposed at a right angle to the flow of said sample, the second of said two columns of microposts positioned between the posts of said first column,

thereby preventing said sample liquid from flowing in a straight line through said well.

29. (Previously Presented) A method of Claim 27, wherein said posts have at least one wedge-shaped cutout aligned vertically to said substrate for facilitating movement of said liquid into said substrate.

30. (Previously Presented) A method of Claim 27 wherein said microposts are positioned above said substrate.

31. (Previously Presented) A method of Claim 27 wherein said microposts contact said substrate.

32. (Previously Presented) A method of Claim 27, wherein said inlet passageway comprises a ramp for directing flow upward or downward to said substrate disposed on a plateau.